

CLAIMS:

1. (Previously Presented) An absorbent sponge-like product for cleaning a surface, the sponge-like product comprising:

a multi-layer compressible substrate, said substrate comprising a plurality of stacked plies of a textured paper web, the paper web having an Overall Surface Depth of greater than about 0.2mm, the paper web comprising pulp fibers, the paper web having a basis weight of at least about 10 gsm, the paper web containing a wet strength agent, said plies being attached together;

an outer cover that allows water to pass therethrough, said compressible substrate being enclosed by the outer cover, the outer cover comprising a flexible porous material; and

an abrasive material attached to the outer cover to facilitate scrubbing of the surface.

2. (Original) A sponge-like product as defined in claim 1, wherein the stack plies are formed from a single folded paper web.

3. (Original) A sponge-like product as defined in claim 1, wherein the paper web further comprises wet resilient fibers, the wet resilient fibers comprising thermomechanical pulp, said wet resilient fibers being present in the paper web in an amount from about 10% to about 50% by weight based upon the total weight of fibers present within the web.

4. (Original) A sponge-like product as defined in claim 1, wherein the paper web has a molded textured surface created during throughdrying.

5. (Original) A sponge-like product as defined in claim 1, wherein the outer cover comprises a material selected from the group consisting of a meltblown web, a

spunbond web, a paper towel, a bonded carded web, a scrim material, a mesh material, a net, an apertured material, and mixtures thereof.

6. (Original) A sponge-like product as defined in claim 1, wherein the substrate comprises at least 10 stacked plies.

7. (Original) A sponge-like product as defined in claim 1, wherein certain of the stacked plies are apertured.

8. (Original) A sponge-like product as defined in claim 1, wherein the paper web has an internal pore volume of at least 50%.

9-66. (Cancelled)

67. (Previously Presented) An absorbent sponge-like product for cleaning a surface, the sponge-like product comprising:

a multi-layer compressible substrate, said substrate comprising a plurality of stacked plies of a textured paper web, the paper web having an Overall Surface Depth of greater than about 0.2mm, the paper web comprising pulp fibers, the paper web having a basis weight of at least about 10 gsm, the paper web containing a wet strength agent, said plies being attached together; and

an outer cover that allows water to pass therethrough, said compressible substrate being enclosed by the outer cover, the outer cover comprising a flexible porous material; and

abrasive material attached to the outer cover to facilitate scrubbing the surface.

68. (Previously Presented) A sponge-like product as defined in claim 67, wherein the stack plies are formed from a single folded paper web.

69. (Previously Presented) A sponge-like product as defined in claim 67, wherein the paper web further comprises wet resilient fibers, the wet resilient fibers comprising thermomechanical pulp, said wet resilient fibers being present in the paper web in an amount from about 10% to about 50% by weight based upon the total weight of fibers present within the web.

70. (Previously Presented) A sponge-like product as defined in claim 67, wherein the paper web has a molded textured surface created during throughdrying.

71. (Previously Presented) A sponge-like product as defined in claim 67, wherein the outer cover comprises a material selected from the group consisting of a meltblown web, a spunbond web, a paper towel, a bonded carded web, a scrim material, a mesh material, a net, an apertured material, and mixtures thereof.

72. (Previously Presented) A sponge-like product as defined in claim 67, wherein the substrate comprises at least 10 stacked plies.

73. (Previously Presented) A sponge-like product as defined in claim 67, wherein certain of the stacked plies are apertured.

74. (Previously Presented) A sponge-like product as defined in claim 67, wherein the paper web has an internal pore volume of at least 50%.

75. (Previously Presented) A sponge-like product as defined in claim 67, wherein the plies are attached together at selected locations by thermal bonding binder fibers between the plies.

76. (Previously Presented) A sponge-like product as defined in claim 75, wherein the binder fibers comprise multicomponent fibers.

77. (Previously Presented) A sponge-like product as defined in claim 75, wherein the binder fibers are applied to each ply in an amount of from about 1% to about 5% by weight of each ply.

78. (Withdrawn) A sponge-like product as defined in claim 67, wherein the plies are attached together at selected locations using an adhesive.

79. (Previously Presented) A sponge-like product as defined in claim 67, wherein the outer covering includes a first section attached to a second section, the first section having an abrasive surface.

80. (Previously Presented) A sponge-like product as defined in claim 79, wherein the first section comprises a meltblown web having shot present on the surface of the web.

81. (Previously Presented) A sponge-like product as defined in claim 80, wherein the second section comprises a spunbond web or a paper towel.

82. (Previously Presented) A sponge-like product as defined in claim 67, wherein the sponge-like product contains an additive associated with the compressible substrate, the additive comprising a soap, a detergent, a buffering agent, an antimicrobial agent, a skin wellness agent, an indicator for an analyte, a lotion, or mixtures thereof.

83. (Previously Presented) A sponge-like product as defined in claim 67, wherein the outer cover is sealed around the compressible substrate.

84. (Previously Presented) A sponge-like product as defined in claim 67, wherein the textured paper web has a Wet Compressed Bulk of at least about 6 cubic centimeters per gram.

85. (Previously Presented) A sponge-like product as defined in claim 67, wherein the textured paper web has a Wet Springback value of at least about 0.6.

86. (Previously Presented) A sponge-like product as defined in claim 67, wherein the compressible substrate has an Absorption Capacity of at least about 6.

87. (Withdrawn) A sponge-like product as defined in claim 67, wherein the plies are attached together at selected locations using a hot melt adhesive.

88. (Withdrawn) A sponge-like product as defined in claim 87, wherein the hot melt adhesive is printed onto certain of the textured paper webs.

89. (Previously Presented) A sponge-like product as defined in claim 67, wherein the product has an Absorption Capacity of at least 12 gm/gm.

90. (Previously Presented) A sponge-like product as defined in claim 67, wherein the product has an Absorption Capacity of at least 17 gm/gm.

91. (Previously Presented) A sponge-like product as defined in claim 67, wherein the product has a Wet Compressive Recovery of at least 75%.

92. (Previously Presented) A sponge-like product as defined in claim 67, wherein the outer cover comprises a meltblown web formed directly on an outer ply of the multi-layer compressible substrate.

93. (Previously Presented) A sponge-like product as defined in claim 67, wherein the outer cover comprises a meltblown web having an open structure, the meltblown web comprising fibers having a mean diameter of greater than about 0.2 mm.

94. (Previously Presented) A sponge-like product as defined in claim 67 that is substantially latex free.

95. (Previously Presented) A sponge-like product as defined in claim 67, further comprising an absorbent layer of foam.

96. (Previously Presented) A sponge-like product as defined in claim 67, further comprising an indicator that detects the presence of an analyte.

97. (Previously Presented) A sponge-like product as defined in claim 96, wherein the indicator changes color in the presence of an analyte selected from biological pathogens and toxins.

98. (Withdrawn) A sponge-like product as defined in claim 67, comprising a binder material that has been printed in a pattern to one or more of the plies.

99. (Withdrawn) A sponge-like product as defined in claim 98, wherein the printed binder material is a hotmelt that was applied in the molten state.

100. (Withdrawn) A sponge-like product as defined in claim 98, wherein the printed binder material is a latex.

101. (Previously Presented) A water absorbent sponge-like article for cleaning a surface, the sponge-like article comprising:

a multi-layer compressible substrate, said substrate comprising a plurality of stacked plies of an uncreped throughdried paper web, the compressible substrate having at least 5 plies and a void volume of at least 50%, the paper web comprising high-yield softwood fibers, the paper web having a basis weight of at least about 15 gsm, the paper web containing a wet strength agent, the paper web having an Overall Surface Depth of greater than about 0.2 mm and wherein the plies are attached together at selected locations occupying less than about 80% of the surface area of the plies to form an integral structure having an Absorption Capacity of about 10 or greater; and
an abrasive material attached to the outer cover.

102. (Previously Presented) A sponge-like article as defined in claim 101, wherein the paper web has a molded textured surface created during throughdrying.

103. (Previously Presented) A sponge-like article as defined in claim 101, wherein the substrate comprises at least 10 stacked plies.

104. (Previously Presented) A sponge-like article as defined in claim 101, wherein the plies are attached together at selected locations by thermal bonding binder fibers between the plies.

105. (Previously Presented) A sponge-like article as defined in claim 104, wherein the binder fibers comprise multicomponent fibers.

106. (Previously Presented) A sponge-like article as defined in claim 104, wherein the binder fibers are applied to each ply in an amount of from about 1% to about 5% by weight of each ply.

107. (Previously Presented) A sponge-like article as defined in claim 105, wherein the binder fibers are applied to each ply in an amount of from about 1% to about 5% by weight of each ply.

108. (Previously Presented) A sponge-like article as defined in claim 101, wherein the article has a Wet Springback of at 0.6.

109. (Previously Presented) A sponge-like article as defined in claim 101, wherein the article has a Loading Energy Ratio of at least 0.6.

110. (Previously Presented) A sponge-like article as defined in claim 101, wherein the article has a Wet Compressed Bulk of at least 7 cubic centimeters per gram.

111. (Withdrawn) A sponge-like article as defined in claim 101, wherein the plies are attached together at selected locations by a hot melt adhesive.

112. (Previously Presented) A sponge-like article as defined in claim 101, wherein the article has an Absorption Capacity of at least 17 gm/gm.

113. (Previously Presented) A sponge-like article as defined in claim 101, wherein the article has a Wet Compressive Recovery of at least 75%.

114. (Previously Presented) An absorbent sponge-like product for cleaning a surface, the sponge-like product comprising:

a multi-layer compressible substrate, said substrate comprising a plurality of stacked plies of a paper web, the paper web comprising softwood fibers and high-yield fibers, the paper web having a basis weight of from about 15 gsm to about 80 gsm, the paper web having a molded textured surface, the paper web containing a wet strength agent, and wherein the plies of the substrate are attached together at selected locations by thermally bonding binder fibers between the plies; and

an outer cover that allows water to pass therethrough, said compressible substrate being enclosed by the outer cover, the outer cover including a first primary surface and a secondary primary surface, said first primary surface being made from a meltspun nonwoven web having an abrasive surface defining said primary surface.

115. (Previously Presented) A sponge-like product as defined in claim 114, wherein said first primary surface comprises a meltblown web having shot present on the surface of the web.

116. (Previously Presented) A sponge-like product as defined in claim 114, wherein the secondary primary surface is made from a paper web, a spunbond web, or a meltblown web.

117. (Previously Presented) A sponge-like product as defined in claim 114, wherein the binder fibers are applied to each ply in an amount from about 1% to about 5% by weight.

118. (Previously Presented) A sponge-like product as defined in claim 114, wherein the substrate comprises at least ten stacked plies.

119. (Previously Presented) A sponge-like product as defined in claim 118, wherein the paper web has an internal pore volume of at least 50%.

120. (Previously Presented) A sponge-like product as defined in claim 114, wherein the second primary surface is water impermeable.

121. (Previously Presented) A sponge-like product as defined in claim 114, further comprising a water impervious barrier material positioned in between said first primary surface and said second primary surface, said barrier material for preventing fluids contacting the first primary surface to reach the second primary surface.

122. (Withdrawn) A tool for scrubbing surfaces comprising:
a handle; and
a sponge-like product connected to the handle, said sponge-like product comprising:

(a) a multi-layer compressible substrate, said substrate comprising a plurality of stacked plies of an uncreped throughdried paper web, the paper web comprising pulp fibers, the paper web having a basis weight of from about 15 gsm to about 80 gsm, the paper web containing a wet strength agent, said plies being attached together; and

(b) an outer cover that allows water to pass therethrough, said compressible substrate being enclosed by the outer cover, the outer cover being made from a material being selected from the group consisting of a meltblown web, a spunbond web, a paper towel, a bonded carded web, a scrim material, a mesh material, a net, an apertured material, and mixtures thereof.

123. (Withdrawn) A tool as defined in claim 122, wherein the tool comprises a mop.

124. (Withdrawn) A tool as defined in claim 122, wherein the paper web comprises softwood fibers and high-yield fibers, said paper web having a molded textured surface created during throughdrying, said substrate including at least ten stacked plies, said plies being attached together at selected locations by thermally bonding binder fibers between the plies.

125. (Withdrawn) A tool as defined in claim 124, wherein the binder fibers comprise bicomponent fibers.

126. (Withdrawn) A tool as defined in claim 125, wherein the bicomponent fibers are incorporated into the paper web during formation.

127. (Previously Presented) A method of making a sponge-like pad for cleaning a surface, the method comprising:

providing a plurality of textured, wet resilient paper web layers comprising papermaking fibers;

disposing thermoplastic binder fibers on one or more of the wet resilient paper web layers;

stacking three or more of the paper web layers such that the thermoplastic binder fibers are between the adjacent layers;

heating the binder fibers to melt at least a portion of the fibers;
cooling the melted portion of the binder fibers, whereby the binder fibers fuse and join the adjacent layers together to form an integral stack of paper web layers; and

enclosing the stack in a liquid pervious cover, wherein said liquid pervious cover defines an abrasive surface.

128. (Cancelled)

129. (Previously Presented) A method as defined in claim 127, wherein the textured paper web layers comprise throughdried paper webs containing high-yield fibers, the paper webs having an Overall Surface Depth of greater than about 0.2 mm.

130. (Previously Presented) A method as defined in claim 127, further comprising applying a molten polymer to the surface of at least one paper web layer of the plurality of paper web layers and allowing the polymer to harden to form an abrasive surface on the paper web.

131. (Previously Presented) A method as defined in claim 127, further comprising applying a curable polymer to the surface of at least one paper web layer of the plurality of paper web layers and curing the polymer to form an abrasive surface on the paper web.

132. (Previously Presented) A method as defined in claim 131, wherein the curable polymer is a photocurable resin and wherein curing the polymer comprises applying light to the resin to photocure it.

133. (Previously Presented) A sponge-like product as defined in claim 1, wherein the entire outer cover allows water to pass therethrough.

134. (Previously Presented) A sponge-like product as defined in claim 67, wherein the entire outer cover allows water to pass therethrough.

135. (Previously Presented) A sponge-like article as defined in claim 101, wherein the entire outer cover allows water to pass therethrough.

136. (Previously Presented) A sponge-like product as defined in claim 114, wherein the entire outer cover allows water to pass therethrough.

137. (Previously Presented) A method as in claim 127, wherein the entire liquid pervious cover allows water to pass therethrough.